

Application No.: 10/782326
Docket No.: HP0085USNA

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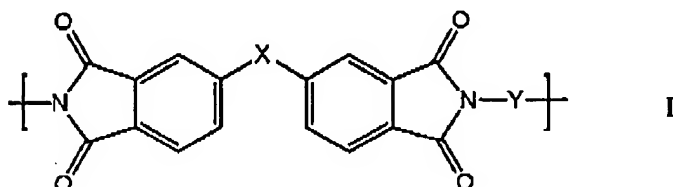
Amendments to Claims

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What is claimed is:

1. (currently amended) A polyimide based composition ~~comprising~~ consisting essentially of a polyimide component and an organic solvent, the polyimide component being represented by formula I



wherein X is O, S(O)₂, C(CF₃)₂, or a mixture of two or three of O, S(O)₂, and C(CF₃)₂;

wherein Y is diamine component selected from the group consisting of m-phenylenediamine (MPD), 3,4'-diaminodiphenyl ether (3,4'-ODA), 4,4'-diamino-2,2'-bis(trifluoromethyl)biphenyl (TFMB), 3,3'-diaminodiphenyl sulfone (3,3'-DDS), bis-(4-(4-aminophenoxy)phenyl sulfone (BAPS) or 9,9-bis(4-aminophenyl) fluorene (FDA);

with the proviso that:

- i. if X is O, then Y is not m-phenylenediamine (MPD), bis-(4-(4-aminophenoxy)phenyl sulfone (BAPS) and 3,4'-diaminodiphenyl ether (3,4'-ODA);
- ii. if X is S(O)₂, then Y is not 3,3'-diaminodiphenyl sulfone (3,3'-DDS);
- iii. if X is C(CF₃)₂, then Y is not m-phenylenediamine (MPD), bis-(4-(4-aminophenoxy)phenyl sulfone (BAPS), 9,9-bis(4-aminophenyl) fluorene (FDA), and 3,3'-diaminodiphenyl sulfone (3,3'-DDS);

wherein the organic solvent:

- i. is a liquid capable of suspending or dissolving the polyimide,

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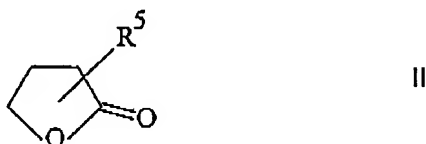
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- ii. has a Hanson polar solubility parameter between and including any two of the following numbers 2.5, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, and 10.0; and
- iii. has a normal boiling point between and including any two of the following numbers 180, 190, 200, 210, 220, 230, 240 and 250°C

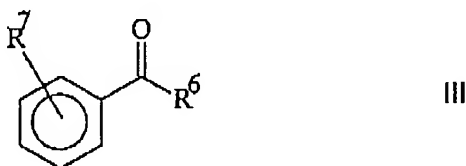
wherein the organic solvent is a member of a group consisting of

- a. a liquid represented by formula II



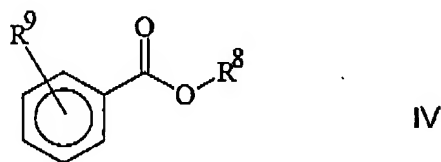
and wherein R^5 is H, CH_3 , or CH_3CH_2 ;

- b. a liquid represented by formula III



wherein R^6 is H, CH_3 , CH_3CH_2 , or OCH_3 and wherein R^7 is H, CH_3 , or CH_3CH_2 ;

- c. a liquid represented by formula IV



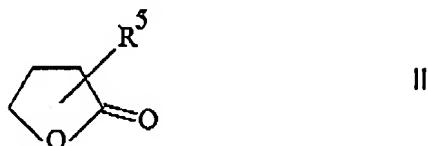
wherein R^8 is CH_3 or CH_3CH_2 and wherein R^9 is H, CH_3 , or CH_3CH_2 ;

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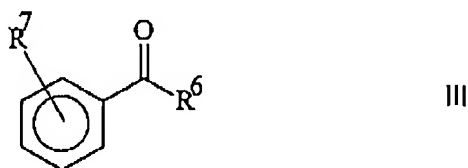
- d. 2-phenoxyethanol;
- e. tetrahydrofurfural acetate; and
- f. combinations thereof.

2. (original) A composition in accordance with Claim 1, wherein the organic solvent comprises a liquid represented by formula II



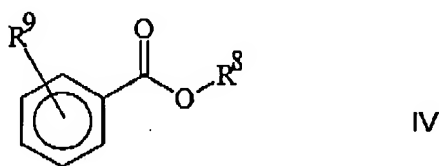
and wherein R^5 is H, CH_3 , or CH_3CH_2 .

3. (original) A composition in accordance with Claim 1, wherein the organic solvent is a liquid represented by formula III



and wherein R^6 is H, CH_3 , CH_3CH_2 , or OCH_3 and wherein R^7 is H, CH_3 , or CH_3CH_2 .

4. (original) A composition in accordance with Claim 1, wherein the organic solvent is a liquid represented by formula IV



and wherein R^8 is CH_3 , or CH_3CH_2 and wherein R^9 is H, CH_3 , or CH_3CH_2 .

5. (original) A composition in accordance with Claim 1, wherein the organic solvent is selected from the group consisting of 2-phenoxyethanol and

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tetrahydrofurfural acetate.

6. (original) A composition according to Claim 1 wherein the polyimide component is present in the composition at a weight ratio of A:B wherein A is the polyimide component and B is the sum of the polyimide component and the organic solvent, and wherein A is between, and including, any two of the following numbers 0.05, 0.06, 0.07, 0.08, 0.09, 0.10, 0.15, 0.20, 0.40, 0.60, 1.0, 2.0, 3.0, 4.0, and 5.0 and B is 100.

7. (original) A composition according to Claim 6 wherein A is between, and including, any of the two following numbers 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29 and 30 and B is 100.

8. (original) A composition according to Claim 1 wherein from 0 to 30 mole percent of the diamine component is selected from the group consisting of 3,3'-dihydroxy-4,4'-diaminobiphenyl (HAB), 2,4-diaminophenol, 2,3-diaminophenol, 3,3'-diamino-4,4'-dihydroxy-biphenyl, and 2,2'-bis(3-amino-4-hydroxyphenyl)hexafluoropropane.

9. (original) A composition according to Claim 1 further comprising a thermal crosslinking agent selected from the group consisting of bisphenol epoxy resin, an epoxidized copolymer of phenol and aromatic hydrocarbon, a polymer derived from of epichlorohydrin and phenol formaldehyde, and 1,1,1-tris(p-hydroxyphenyl)ethane triglycidyl ether.

10. (original) A composition according to Claim 1 further comprising a blocked isocyanate.

11. (original) A composition according to Claim 1 further comprising a metal adhesion agent selected from group consisting of polyhydroxyphenylether (PKHH), polybenzimidazole, polyetherimide, and polyamideimide.

12. (original) A composition according to Claim 1 further comprising a metal or metal oxide.

13. (original) A composition according to Claim 12 wherein the metal or metal oxide is pretreated with a silane or titanate agent.